UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,421	01/26/2001	Eung Tae Kim	CIT/K-136	4233

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EXAMINER
SENFI, BEHROOZ M

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

1) Dear Hi,

	Application No.	Applicant(s)
Office Action Summary	09/769,421	KIM, EUNG TAE
	Examiner	Art Unit	
	Behrooz Senfi	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-23* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-5,9-18 and 20-23* is/are rejected.
7) ☒ Claim(s) *6-8 and 19* is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All b) ☐ Some * c) ☐ None of:
        1. ☒ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____.
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.
13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
    a) ☐ The translation of the foreign language provisional application has been received.
14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1 – 4 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by

Sita et al. (US 6,539,120).

Regarding claims 1, Sita '120 discloses "an apparatus for receiving digital

Motion Pictures" (i.e. fig. 2B), comprising: "a video bit stream extracting means for

separating and extracting a bit stream including video signals" (i.e. fig. 2D), and "a video

display processor for carrying out down conversion by converting the extracted video

stream to a field DCT coded block if the video bit stream is an interlaced scanning

sequence with a frame DCT coded block ......" (i.e. figs. 2B and 5, col. 2, lines 20+ and

col. 5, lines 62+, col. 8, lines 5+).

Regarding claims 4 and 17, Sita '120 "a video decoding device in which input

video bit streams are restored into pixel values of an original screen by the steps of

inverse quantization IQ after variable length decoding VLD, inverse discrete cosine

conversion IDCT, and motion compensation MC" (i.e. fig. 2C), and "a down-sampling

IDCT part for carrying out 4x4 inverse discrete cosine transform IDCT after removing

DCT coefficients of high frequency components in horizontal/vertical directions ......"

(i.e. fig. 5, 510 and 520, and fig. 2E, 206b, col. 21, lines 36+), and "a memory for storing

......" (i.e. fig. 1B), and "an up-sampling part for carrying out up-sampling of a reference

picture ......" (i.e. figs. 2D and 2B, up sampler), and "a motion compensation part ......"

(i.e. fig. 2E, 206) and "a down-sampling part ......" (i.e. fig. 2E, down sampler), and "a

video display processor for reading the data stored in the memory according to a

display mode" (i.e. col. 6, lines 41+).

Regarding claims 2 – 3, the limitations claimed are substantially similar to claim

4, therefore the grounds for rejecting claim 4 also apply here.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 5, 9, 10, 13, 18 and 21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Sita '120 as applied to claims1 – 4 and 17 further in view of

Yonemitsu et al (US 5,485,279).

Regarding claims 5 and 18, Sita '120 discloses "a video decoding device,

wherein the IDCT part comprises: a horizontal reduction part for removing the DCT

coefficients of the high frequency components ......" (i.e. fig. 5, 520), and "a matrix

multiplier for down sampling the field DCT ...... and a horizontal IDCT for carrying out

IDCT in horizontal direction" (col. 21, lines 60+). Sita '120 fails to explicitly teach

"frame/field converter for converting the frame DCT coded block to the field DCT coded block".

However, such features are well known and used as evidenced by Yonemitsu '279 (fig. 9B, frame/field switching circuit 55) to select/change frame DCT to field DCT as claimed. Therefore, taking the combined teaching of Sita '120 and Yonemitsu '279 as a whole, it would have been obvious to use the frame/field switching circuit as taught by Yonemitsu '279 to select the DCT frame/field mode and arrange the data according to the selected mode (i.e. figs. 10A – 11B).

Regarding claims 9, 10 and 21, the limitations claimed ""up sampling part selects fields proper for the motion vectors, ..." reads on combination teaching of Sita '120 and Yonemitsu '279 (frame/field switching circuit of Yonemitsu), and "motion compensation part forms motion compensated field blocks by half-pel interpolation with relation to the up-sampled blocks ......" (fig. 2B, 224 of Sita).

Regarding claim 13, combination of Sita '120 and Yonemitsu '279 teach, "post-processing" (fig. 1, 15 of Yonemitsu).

5.   Claims 14, 16 and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sita '120 as applied to claims1 – 4 and 17 further in view of Fogg (US 6,466,624).

Regarding claims 14, 16 and 20, Sita '120 discloses "a video decoding device, wherein the IDCT part comprises: a horizontal reduction part for removing the DCT coefficients of the high frequency components ......" (i.e. fig. 5, 520), and "a matrix multiplier for down sampling the field DCT ...... and a horizontal IDCT for carrying out

IDCT in horizontal direction" (col. 21, lines 60+). Sita '120 fails to explicitly teach "top field and/or bottom field to store in a memory for carrying out the motion". However, such features are well known and used as evidenced by Fogg '624 (fig. 3b, col. 8, lines 44+). Therefore, taking the combined teaching of Sita '120 and Fogg '624 as a whole, it would have been obvious to modify the decoding system of Sita as taught by Fogg for reducing complexity and/or bandwidth requirement.

6.   Claim 15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sita '120 and Fogg '624 further in view of Kim et al. (US 6,104,753).

        Regarding claim 15, combination of Sita '120 and Fogg '624 teach the claimed "variable decoding" (fig. 2a, 210 of Sitfailnd "inverse quantization" (fig. 2a, 214 of Sita) and "removing the DCT coefficients" (fig. 5, of Sita). Combination of Sita '120 and Fogg '624 fails to explicitly teach the claimed "8 x 4 inverse discrete cosine transform". However, such features are well known and used as evidenced by kim '753 (i.e. fig. 9, 29 and 31, col. 4, lines 50+). Therefore, taking the combined teaching of Sita '120 and Fogg '624 and Kim '753 as a whole, it would have been obvious to modify the HDTV decoding system of Sita and Fogg as taught by Kim to reduce the frame memory size and obtain a good picture quality (col. 4, lines 19 – 22 of Kim).

7.   Claim 11, 12, 22 and 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sita '120 further in view of Kim '753.

        Regarding claims 11, 12, 22 and 23, Sita '120 "a video decoding device in which input video bit streams are restored into pixel values of an original screen by the steps of inverse quantization IQ after variable length decoding VLD, inverse discrete cosine

conversion IDCT, and motion compensation MC" (i.e. fig. 2C), and "a down-sampling

IDCT part for carrying out 4x4 inverse discrete cosine transform IDCT after removing

DCT coefficients of high frequency components in horizontal/vertical directions ......"

(i.e. fig. 5, 510 and 520, and fig. 2E, 206b, col. 21, lines 36+), and "a memory for storing

......" (i.e. fig. 1B), and "an up-sampling part for carrying out up-sampling of a reference

picture ......" (i.e. figs. 2D and 2B, up sampler). Sita '120 fails to explicitly teach "down

sampling parts converts eight pixels into four pixels". However, such features are well

known and used as evidenced by kim '753 (i.e. fig. 9, 29 and 31 and 32, col. 4, lines

50+). Therefore, taking the combined teaching of Sita '120 and Kim '753 as a whole, it

would have been obvious to modify the HDTV decoding system of Sita '120 as taught

by Kim to reduce the frame memory size and obtain a good picture quality (col. 4, lines

19 – 22 of Kim).

Allowable Subject Matter

8.   Claims 6, 7, 8, 19, are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

7.   Any inquiry concerning this communication or earlier communications

from the examiner should be directed to **Behrooz Senfi** whose telephone

number is **(703)305-0132.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, **Chris Kelley** can be reached on **(703)305-4856.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or

proceeding should be directed to the Technology Center 2600 Customer Service Office

whose telephone number is (703) 306-0377.

B. S. ℬ₋ℐ.

1/11/2004

CHRIS KELLEY
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